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Reconstitution of complex defects with the methodof neural network: Application for the nondestructiveevaluation

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Abstract : in this work, we propose a reconstitution of complex defects starting from the results obtained during a nondestructive testing by eddy currents carried out on aconducting plate by using the neural network. We provided tothe neural network the values of impedance of the differential sensor calculated using a modeling by finite elements.The values of impedance are injected at the input of the neural network and the depth of the defect is recovered in its output, we used the gradient of the error propagation algorithm for performing learning of the neural network.

Keywords : Neural Network, eddy currents, impedance, complex defect, nondestruction evaluation